Report of the April 2002 Meeting
of the
Astronomy and Physics Working Group

The Astronomy & Physics Working Group met on April 25 & 26 at NASA Headquarters. Members who were present were Chris Blades, Ed Cheng, Mark Devlin, Brenda Dingus, Kathryn Flanagan (Co-chair), Terry Herter, Dick Miller, Doug Richstone (Chair), Wilt Sanders, Eun Suk Seo, Ted Snow and Erick Young. The meeting agenda is attached. The committee is impressed with the scope, vitality and impact of the R&A and SR&T programs. As usual, this report focuses on the few issues where we were asked to comment on specific questions, or wished to bring certain issues to your attention.

Merging the SR&T and R&A Programs into two large reviews.

The APWG was shown a top-level plan to merge several of the elements of the ROSS announcement and subsequent review processes for the SARA, HEA, Theory/DA and Origins programs. One purpose of the change is to implement a desire by the SScAC to have a broad peer-review evaluation of the SR&T program that allows funds to cross the traditional (historical) discipline lines. The APWG agrees with this purpose. However, it is important that investigators in the affected disciplines be notified of any changes in advance so that they can appropriately prepare their proposals. We recommend that the flexibility be maintained for proposers to combine appropriate elements into a single proposal, e.g. to include detector development or laboratory astrophysics components in a proposal that is primarily sub-orbital. The APWG also recommends that any reallocation of funds should be limited to a modest level from year to year. This will allow the potential flow of funds across discipline lines to occur in a smooth fashion giving proposers adequate time to adjust to the changes.

The practical implementation of this combined program is a concern of the APWG. The resulting review will be very large and difficult to carry out efficiently. In addition, the wide range of technical and scientific specialties involved will make it difficult to convene a panel with the breadth and interest to capably review the mix of proposals. One possible procedure would be to do the reviews within a few weeks of each other, followed by a meeting between the panel chairs and the discipline scientists to intercompare the quality of the proposals.

The issues noted above apply primarily to the APSR&T part of the program. The APGW was less concerned about the impact of this unification on the APRA program.

The APWG would like a report on the progress of this activity.

Technology Development

The APWG is encouraged by the progress that has been made in organizing diverse technology development efforts to support future missions. Key challenges will be to clearly define the technology requirements, communicate them to the technology management organizations, select the best technology implementers, and the overall accountability of the technology program. The APWG is particularly impressed that roughly half of the Code R technology

development funds is currently *peer reviewed*. The fraction of *openly competed* funding should be increased as rapidly and to the maximum extent practical. Code S participation in defining these opportunities as well as in the peer reviews will help ensure that proven processes and procedures will be used. We anticipate further discussion of this at our next meeting.

Science using balloon-borne payloads

The APWG is happy to learn of the FY03 augmentation to the balloon program to stabilize the program for traditional and LDB operations. In addition to its proven capabilities to deliver world-class science, the balloon program continues to provide a unique development platform for testing new technologies, and more importantly, provides critical hands-on training for future generations of scientists and engineers for space missions. Continuing these contributions is critical to successfully fulfilling many aspects of NASA's mission.

The APWG is also happy to learn that a balloon mission fared well in the most recent round of MIDEX selections. The future success of such missions is critical to enabling and sustaining the ULDB capabilities currently in development. The ULDB program holds great promise for further improving the already remarkable cost/benefit metric of NASA's existing balloon technology.

The distribution of grant funds for programs with investigators at different institutions

When a funded research program involves investigators from multiple institutions, NASA has in some cases issued a single grant to the PI institution, requiring that funds for Co-I's be distributed through subcontracts. In other instances NASA has issued individual grants separately to the PI and Co-I institutions. In the first case some of the grant money is subject to "double overhead" because a portion of the grant is subject to indirect cost charges at both the PI and Co-I institutions. This problem is often most acute for small grants, because many institutions charge their standard overhead rate on the first $10,000 or $20,000 of a subcontract. The situation is not exactly the same at all institutions. The APWG encourages NASA to offer the option of individual grants to Co-I institutions in collaborative programs, in order to maximize the effectiveness of the grants. Questions of PI control over the research can be addressed through the budgeting and reporting process, as has been demonstrated by the High Energy Astrophysics discipline office, which routinely issues separate grants to Co-I institutions.

On the web site supporting ROSS:

The APWG supports the increased use of web-based services for proposers. It is important that these web services be navigable and effective. We are concerned that the web site for the ROSS 2002 proposal opportunity is very complex and confusing, sometimes obscuring the pathways to needed information. It appears to be worse than the previous version. We urge NASA to conduct a review of this web site in preparation for ROSS 2003, perhaps involving representatives of the user community to help test, simplify, and debug the site.

Funding for NVO activities

We were briefed about the issue of where to find funds for the National Virtual Observatory, a high priority recommendation of the National Academy Decadal Report. We believe that the Decadal Report panel did not intend to fund the NVO effort at the expense of ongoing NASA R&A activities, but was seeking new funding for this activity. APWG supports the use of archives (and believes that the large NASA missions have recently done a good job of archiving data and of making those archives usable by the scientific community). However, we think that the diversion of resources from R&A to support NVO would be extremely damaging to current and future astronomical activities supported by NASA.

The recent ATP review

We were briefed about the difficulties in identifying reviewers for the preceding ATP review. In response to questions raised during the discussion, the APWG feels that panel size is probably optimal at about 6 members, that the number of panels could be reduced through judicious combinations of activities to review. The issue of conflicts of interest in these reviews was differentiated according to the kind of conflicts. Institutional conflicts were not seen as overly serious, since, at least for universities there is not a great incentive to help colleagues. On the other hand, having PIs present at a review, even on another panel was seen as highly undesirable. The APWG believes that the use of panel chairs in balancing the review across the panel usually works well.

Close out funding

The APWG recognizes the importance of the long term investment in established efforts. In those cases where the abrupt termination of a program will lead to the immediate, irretrievable loss of a critical capability, the APWG recommends that those programs be considered for one year reduced "bridge" funding. This funding is intended to allow the groups to re-apply for funding with the hope of preserving this capability. Such funding should be at the discretion of the discipline scientists balancing the cost of the loss of the capability with the potential gain of funding a new initiative or new investigators.

We suspect that the balance between maintaining specific capabilities and encouraging new investigations is somewhat more favorable to the former in the technology areas, and somewhat more favorable to the latter in the more theoretical areas.

The roadmap process

APWG heard reports on the progress of the SEU and Origins Subcommittees in constructing their roadmaps for the OSS Strategic plan. The SEUS has asked the APWG for help the R&A part of their plan. APWG has appointed a subcommittee to respond to those issues composed of Kathy Flanagan (chair), Chris Blades, Ed Cheng, Brenda Dingus, Wilt Sanders, Ted Snow and Tuck Stebbins.

Laboratory Astrophysics

The APWG had a brief discussion of Laboratory Astrophysics issues. There are some concerns in the community that Lab Astrophysics activities of great value for the interpretation of data from current and future NASA missions may be losing support because they do not align well with the current structure of the RA or SR&T programs. There are two workshops on NASA supported Lab Astrophysics in the very near future. Ted Snow will attend one of these and will report back to APWG on this issue.

Coordination with NSF

The APWG heard a report on the progress of the response to the COMRAA Report. While much remains to be sorted out, we note that the coordination of NASA and NSF activities is of considerable importance. We do not understand how the NSF/NASA committee will interact or exchange information with the NASA advisory structure (the FACA committees and the WG's) already in place.